

QUINDOS® RELEASE NOTES

Version 2019.2



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1 Prerequisites – before installing QUINDOS 2019.2

1.1 Supported operating systems

This version of QUINDOS is supported on the following operating system

- Windows 10, 64-bit

The minimum requirement is Windows® 10 Version 1607 and the recommended version is Windows® 10 Version 1803¹.

Version	Maintenance Microsoft	Availability	OS build	Last Revision Date
1803	Semi-annual	7/10/2018	17134.441	11/27/2018
1607	Long-Term Servicing Branch (LTSB)	8/2/2016	14393.2641	12/3/2018

Table 1: Software components and versions

This QUINDOS version can be used also on Windows 7® 64-bit, but the support and fixes for operating system related bugs will be limited.

1.1.1 Important notes: QUINDOS Versions

Beginning October 2018, QUINDOS will be released under a new schedule.

Two release versions will be made available for you.

In addition to the previous release version in Q2 of each year, which is part of our software maintenance contract (SMA), a second QUINDOS release version will be published in Q4 of each year. This guarantees continuous access to innovations.

The renaming of the release versions takes place at the same time.

The QUINDOS version 2019.1 is the first version of this new schedule.

QUINDOS will be launching the first major release (2019.1) in Q4 of each year and will be offering the second version (2019.2) in Q2 of each year.

The first main version 2019.1 can be used with a valid SMA contract which contains the date 30.06.2018 (calendar day 181).

The second main version 2019.2 can be used with a valid SMA contract which contains the date 31.12.2018 (calendar day 365).



QUINDOS 2019.2 is the last version that is supported and delivered as a 32-bit application.

¹The version 1803 (OS build 17134.441) is recommended to avoid QUINDOS license problems.

1.2 Software components and versions

The following operating system components are installed by this QUINDOS version or by an option:

Software component	Version/revision number
Open Cascade	7.2.0
DATAKIT	V2019.1
QuindosHostInfo	1.15.1.18260
Microsoft .NET Framework 4.7.1	4.7.2558.0
Microsoft Visual C++ Redistributable	<ul style="list-style-type: none"> • C-RunTime Libraries for Visual Studio 2012 (11.0.61030) • C-RunTime Libraries for Visual Studio 2013 (12.0.21005) • C-RunTime Libraries for Visual Studio 2017 (14.12.25810.0)
Sentinel® LDK and Sentinel HASP® Run-time Environment Installer 2017 (HASPUserSetup)	7.80.18023.60000
IppServer Application	7.15.18365.1
PloServer	7.15.18365.1
VimDrvApp	1.0.19018.0
Quindos PPS LogService	V4.0.30319
Quindos ReportViewer	V4.0.30319
Quindos PageDesigner	V4.0.30319
Quindos PageViewer	V4.0.30319

Table 2: Software components and versions

1.3 Hardware

We recommend the following hardware configuration (*Low*) when using the QUINDOS software package without CAD:

- Processor: Intel® Xeon W-2104 3,2GHz, 4C, 8,25MB Cache
- RAM: 8 GB DDR4 (1 x 8 GB), 2666MHz
- Graphic card: NVIDIA® Quadro® P2000, 5 GB, 4 DP (5820T)
- TFT – Monitor: 24 inch (Standard Dell U2413)
- Monitor resolution: 1920 x 1200
- Hard drive: 1 x 500 GB SATA
- A second network interface card (required for machine communication)

We recommend the following hardware configuration (*High*) when using the QUINDOS software package incl. CAD options and when using QUINDOS in connection with the Option QUINDOS Reshaper or the software package I++Simulator.

- Processor: Intel® Xeon W-2104 3,2GHz, 4C, 8,25MB Cache
- RAM: 32 GB DDR4-RDIMM (2 x 16 GB), 2666MHz
- Graphic card: NVIDIA® Quadro® P4000, 8 GB, 4 DP (5820T)
- TFT – Monitor: 24 inch (Standard Dell U2413)
- Monitor resolution: 1920 x 1200
- Hard drive: 1 x 256 GB SSD HD, 1 x 1 TB SATA HD
- A second network interface card (required for machine communication)

Please check whether or not a serial interface is required for connecting to an older machine.

We recommend a second TFT-Monitor when using CAD functionalities and using the QUINDOS option Reshaper or the environment I++Simulator.



Please note that driver updates – especially of graphics card drivers – should be ensured during the lifetime of the PC.



The latest I++Simulator Release Version 2018 (Version 9.0.18103) is recommended.



The 3DReshaper version Meteor 2017 MR1 (18.0.4.28780) is recommended.

The following laptop specification can be used as an orientation for mobile platforms when using CAD functionalities and using the QUINDOS option Reshaper or the environment I++Simulator.

- Processor: Intel® Core™ i7-8850H
(6 Core, 2,6GHz, 4,3GHz Turbo, 9MB)
- RAM: 32 GB RAM (2 x 16 GB)
- Graphics card: NVIDIA Quadro P4200 8GB
- Hard drive: at least 512 GB

1.4 Before installing QUINDOS version 2019.2

Make sure you have access to a back-up of your current QUINDOS version.

This is required if there are problems with the new QUINDOS installation to roll back to the current version.

Uninstall the existing Q7 version from your computer before continuing.

We recommend backing up all measurement programs, environments, licenses and databases before performing a complete new install.

Please refer to the notes in the installation manual *QUINDOS Basis Installation Manual*.



Please note, a valid software license agreement (SMA) is required to use this version.

Version 2019.2 can be used with a valid SMA contract which contains the date 31.12.2018 (calendar day 365).

The SMA end date is checked during the installation process.

2 Instructions for the first QUINDOS installation

Please note that a new installer package is used for QUINDOS.

Please note the information in the updated basic installation manual: <http://download.quindos.de> for the new QUINDOS installer.

The access data of the QUINDOS download server are

- User: ftp-gast
- Password: Quindos7_9005

Download the current Release version (2019.2). This can be found on the download server in the category *QUINDOS7 Release*.

We recommend backing up all measurement programs, environments and databases before performing a complete new install.

Prior to performing a new installation of QUINDOS 2019.2, older versions must be completely uninstalled and residual data removed.

2.1 Downloading and installing QUINDOS Version 2019.2 from the server

Proceed as follows to download and install QUINDOS.



Please note, a valid software license agreement (SMA) is required to use this version.

2019.2 can be used with a valid SMA contract which contains the date 31.12.2018 (calendar day 365).

The SMA end date is checked during the installation process.

Use your internet browser to open <http://download.quindos.de>.

The access data are

- User: ftp-gast
- Password: Quindos7_9005

Click the file 2019.2 and use the Save option to download the file to your local computer.

The selected folder will now contain the installer 2019.2.

You need an administrator account to install QUINDOS.

This can be an administrator user as an unelevated administrator account or a hidden built-in elevated administrator account with full unrestricted access to the PC.

If you use an administrator user please select the 2019.2 file, use the right click and select 'Run as administrator'. Windows will display a UAC prompt for the administrator user to approve before allowing this action.

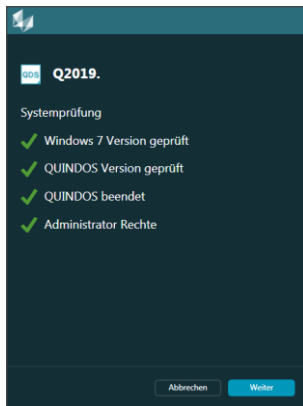


Figure 1: QUINDOS install menu – system check

Please note that the standard installation directories and working directories for a new clean installation have been changed. The installation folders are now compatible with the Windows® requirements.

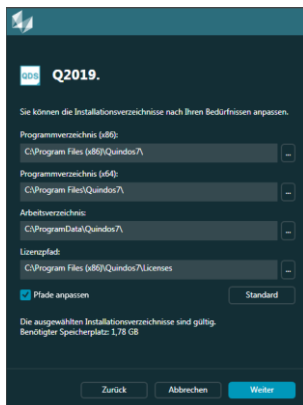


Figure 2: QUINDOS install menu – folder definition

The default program folder for the 32-bit applications of the QUINDOS components is *C:\Program Files (x86)\Quindos7* and for the 64-bit applications *C:\Program Files\Quindos7*.

The working directories (*Quindos7Users*, *Quindos7Machines*, *Quindos7Lib*) will be created in the folder *C:\ProgramData\Quindos7*.

The default license folder is *C:\Program Files (x86)\Quindos7\Licenses* as in previous versions.

We recommend the default settings for a new/the first installation.

Please read the information in the *QUINDOS Basic Installation Manual* for an update installation.

The default 64-bit application of QUINDOS will be available via the default desktop icon (*Quindos7 (x64)*) after the installation.

The QUINDOS 32-bit application is available via the Windows® start menu.

An entry has been integrated in the Windows start menu to allow easy access to the hidden folder *C:\ProgramData\Quindos7*. It automatically opens the folder *C:\ProgramData\Quindos7* in the Windows® explorer. In addition, a desktop icon *QuindosWorkingDir* is created which provides easy access.

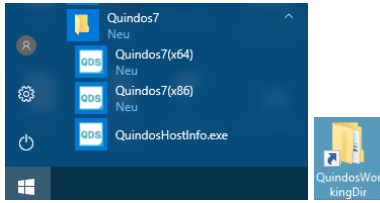


Figure 3: Windows start menu – QUINDOS apps incl. the QUINDOS working directories



Please note, that directory inquiries need to be adjusted in your existing programs if you use the new definitions for the installation and working directories. Please check your existing programs for such inquiries.

We recommend using unified definition of the directories on all PCs to minimize the adaptations in this case.

Directory definitions that diverge from the current default should be communicated in-house.

3 Instructions for updating QUINDOS

Please note the following hints to update from a previous QUINDOS installation (QUINDOS release version < V7.13.17317).

We recommend backing up all measurement programs, environments and databases before performing a complete new install.

Prior to performing a new installation of QUINDOS 2019.2, older versions must be completely uninstalled and residual data removed. Instructions and information can be found in the *QUINDOS basic install manual*.

The new installation routine automatically checks for the presence of the file *Q7Setup.ini* under *C:\Windows* and the corresponding registry settings from a previous QUINDOS installation.

If present, the existing entries in the *C:\Windows\Q7Setup.ini* file will be applied.

The file contains the paths defined in the previous installation. In the case of a standard installation, the content is as follows:

```
[Settings]
INSTDIR=C:\Program Files (x86)\Quindos7\
QDSLIB=C:\Quindos7Lib\
QDSMACHINES=C:\Quindos7Machines\
QDSUSERS=C:\Quindos7Users\
QDSX64=No
```

In a previous 64-bit installation, the value for QDSX64 was set to Yes.



Manual changes to the file *Q7Setup.ini* and the registry settings should not be made.



When updating an existing installation, we recommend accepting the suggested directories to avoid compatibility issues.

Please also note the advice above when importing back-ups of working environments.



A QUINDOS database version check has been integrated to avoid compatibility issues. A warning message will be displayed when using databases which have been saved with a higher QUINDOS version number than the installed QUINDOS version.

4 QUINDOS licensing

QUINDOS switched to Flexera licensing (*FlexLM*) with the release version Q7.10.14363.



Existing licenses (**lic*, **sma*) retain their validity if the listed cases do not apply.

Existing licenses (**lic*, **sma*) stay valid except for the following cases:

- You use licensed procedures (LPC) like CMMCheck, CaptoPSC, CenterBall, EvaVarGearRack, GDE_IFC, GEAR_OFFSET, LBROACH, MeAPIThread, MeGearRack, SesamePrc, Sprocket or TangentialHob.
- You install QUINDOS for the first time (new installation, new Operating System, ...).
- You renew your Software Maintenance Agreement.
- There is a hardware replacement.

A single license file with the ending **_FLEX.lic* replaces your old ethernet-based license with the ending **.lic* and the separate file for your Software Maintenance Agreement with the ending **.sma*.

The header section in the **_FLEX.lic* file now contains the information relevant to your Software Maintenance Agreement (SMA).

The contract number and contract duration (*StartDate* and *EndDate*) followed by the machine types which have been activated are listed.

If a change of license file is necessary, host information must be created using the *QuindosHostInfo* utility. Please follow the steps described in the *QUINDOS Basis Installation Manual*.



If you use a Flexera network license, please install the latest Flexera License server. You can download the latest *HMPTS_FlexNet_License_Server.exe* from our download server (category: Utilities).

5 DATAKIT converter licenses

DATAKIT licenses are now handled within QUINDOS. New licenses work in combination with the Flexera licenses.

Using ethernet licenses (*.lic and *.sma) requires previous DATAKIT licensing.



If you switch from the old method of licensing (*.lic and *.sma based on the MAC address) to Flexera, all references to network license servers (*DATAKIT_LICENSE_FILE*) must be removed from the registry. Otherwise there is a long delay when loading CAD models.

5.1 DATAKIT version 2019.1

QUINDOS Release version 2019.2 supports the following CAD formats and versions:

- JT(BREP): up to 10.3
- CatiaV4: 4.15 to 4.24
- CatiaV5: R10 to R28 (V5-6R2018)
- CatiaV6/3DEXperience: up to R2017x
- Parasolid: up to 30
- ProEngineer/Creo: 2000i to WF5, Creo up to 4.0
- Unigraphics/Siemens NX: 15 to NX 12
- SolidEdge: 10 to ST10
- SolidWorks: 1999 to 2018

A separate DATAKIT option license is required.

6 Important notes for part programs in case of updating from a previous version

6.1 QUINDOS installer without PDFCreator



Please note that from version 7.11.15351-4 the installer which is delivered/available for download no longer contains the *PDFCreator*.

QUINDOS programs should run without requiring the *PDFCreator*.

The *PDFCreator* will no longer be installed in future.

Please note that as of now, we recommend that you use the replacement commands described below when writing new programs.

You should plan capacity to adjust your existing programs.

The obsolete commands listed below are no longer maintained.

6.1.1 QUINDOS without the PDFCreator

- The following commands to save reports and plots are obsolete.
 - PRS_SavePDF
 - PLS_SavePDF
 - PRS_ConfigPDF
 - PLS_ConfigPDF
- Replace the old commands to output reports and plots as PDFs in your existing programs with the following commands. Please note that export to an image file (JPG, PNG, TIF) is not supported.
 - PRS_SaveDoc replaces PRS_SavePDF
 - PLS_SaveDoc replaces PLS_SavePDF

The new SDB commands should be used in the same manner as the old ones.

- You can now use the commands PLS_EXPPAGE and PLS_EXPPAGES to save plots as images in the formats PNG, TIF, JPG, GIF, BMP.

7 QUINDOS CAD – important information

The CAD kernel was updated from Open Cascade version 6.7.0 to Open Cascade version 6.9.0 with version 7.11.15351. This sometimes leads to missing group assignments.

Please read the following information when updating from a previous version to 2019.2.

For loading CAD Models (*.step, *.iges) we recommend using the following procedure:

- Use PDB command `CadConvertFile` to convert the original file to the new xbf file format.
- Use the command `CadLoadModel` with the new xbf file.
- Start the *ImportWizard*.



When using CAD, note that some model preparations must be introduced in existing programs. This sometimes leads to missing group assignments. The reason for this is a change in calculation of the group hash code.

If groups cannot be assigned, please pay attention to chapter 7.1.1.

The changed model structure is signified by the warning messages with *ProgramId* 'Parse Model' which are displayed on the tab page *ErrorLog* in the left QUINDOS window.

7.1.1 Handling missing group assignments when updating

If your programs include CAD models, we would like to point out that separate handling is needed as of version 7.11.15351 if no xbf file was generated and is available for each program.

There are 2 alternatives available:



Version 1 *before installing the new version.*

This procedure has to be done for each program with CAD use.



Version 2 *for direct update to the new QUINDOS Version.*

Please note that this method can be time-consuming. This procedure has to be done for each program with CAD use before using this program for the measurement.

7.1.1.1 *Version 1*

- Use the PDB command `CadConvertFile` to convert the original file to the new xbf file format.
- Change the CAD file in the existing command `CadLoadModel` to the new xbf file.
- Save your part program.

7.1.1.2 *Version 2*

- Load your part program.
- Load your CAD Model with the command `CadLoadModel` from your part program using the same XML name as before.
- Open the *ErrorLog* and check for warnings *ParseModel*.
- If there are no warnings, the program is usable without adjustments.
- If not, a new preparation as during the first preparation (automatic grouping, manual grouping, verification of surface direction etc.) is needed. After that, update all bindings manually. Please save the CAD model and your part program at the end.
- Instead of the stepwise preparation (see above):
Use the command `CadVfyBinding` and `CadCreBinding` if you are already familiar with this workflow and trained. Please note that this processing depends on the given NDB coordinate systems.



New recommended workflow for CAD from QUINDOS version 7.11.15351 is to generate an xbf file after loading the model the first time and use this for your part programming (see Version 1: Before installing the new version).

8 Third party hardware

8.1 Renishaw probe heads



Please note that probe calibration of the scanning probe heads from Renishaw will be supported only by the QUINDOS 64-bit version with Versions \geq Q7.13.17317.

9 QUINDOS Version 2019.2

9.1 Bug-fixes

QUINDOS version 2019.2 fixed the following command bugs in the previous release and daily versions.

Command/Area	Description	ID
BladeMeanLine	The command is now working as intended with the arguments <i>LEC=x.xx</i> and <i>TEC=x.xx</i> . The cut-offs are treated correctly. The chord length calculation has been corrected.	4375
BladeMeanLineCenteredCircle	Computation of the tangential points for a certain set-up sometimes led to wrong results. This bug has been fixed.	4536
Blade Ultimate	All the nominal points on the 2D curve now display the correct values in the F11 view. All the 2D curve properties are set correctly. The 2D constrained Gauss best-fit is back to normal operation. The result of 3D actual nominal comparison is at a constant Z height when the parameter <i>ShfInZ=Yes</i> .	3922
Blade Ultimate	ChordLine, name of the result element – if no mean line name is specified or the specified name is equal to MeanLine, the name of the chord line is ChordLine. If a mean line name is specified, the name of the chord line is <Name>_ChordLine. F11 behaviour, an exception for 2D elements has been fixed.	4051
BLDCIR	When calculating a Maximum Inscribed Circle (<i>ITY=CII</i>) with the old algorithm (default; <i>NWA=N</i>) the actual points must describe more than 180 degrees of the circle. You can switch to a newer calculation routine via <i>NWA=Y</i> to avoid this limitation.	3950
CadAcNo	The command now raises an error message if a binding is not present in the source element.	4151
CadAcNo	The command now supports elements in cylindrical or spherical coordinate systems. Deviations (<i>DEV=Y</i>) are now calculated correctly if the points are ball centers. Minor improvements for consecutive points on face boundaries have been made.	4081
CadBfit3D	The <i>CBY</i> fit method with tolerance zone values has been fixed.	4131
CadBfit3D	The command now works correctly when the <i>FIX</i> argument is used.	3194

Command/Area	Description	ID
CadBfit3D	CadBfit3D gives a wrong optimization when all degrees of freedom are free. The <i>CBY</i> method has been fixed. The <i>GSS</i> method has been improved. The user can choose whether the normal directions are taken into account or not. For large pointsets or pointsets with a bad pre-alignment, the user is able to start the best fit with a sub-pointset. The point number increases during the best fit until all points are taken into account.	4171
CadCleanModel	Removing shapes from the model only deleted the shapes from the view. Shapes are now removed permanently. Removed faces will be missing when the model is next loaded.	4491
CadEditMesh	Displaying the triangulation is currently only supported on grouped models. Use the command <code>CadGrouping (NAM=NameOfModel, COR=N, TYP=(PLA,CYL,CON,SPH,TOR,SRF), COL=Y, DEL=Y, UNA=N)</code> to remove the groups before modifying the mesh with <i>CadEditMesh</i> .	4005
CadGrouping	<i>CadGrouping</i> and the assembly tree can now handle iges and step models containing non-ASCII names.	4554
CadLinIntersect	All intersection points are now returned instead of just the closest point in the specified direction. Previously, plane intersections were skipped, now they are calculated.	4560
CamShaft	Tool names are now inserted correctly in the nominal elements (e.g. for <i>ME2DE</i>) when automatically generating a program.	4084
Crv3DBestFit	The command was not listed in the <i>Curve3D</i> menu. The problem is now fixed.	4329
ERRSTEP	This command now saves the values and the coordinates of the minimum and maximum value in the defined window in the nominal data of the result element. This allows further evaluations.	4542
FeatureSelect	Aborting execution in the preview mode via <i>Cancel</i> has been fixed. The new keyword <i>ANS</i> holds the name for the character variable. If the keyword is given, <i>Save close</i> will store <i>Y</i> and <i>Cancel</i> will store <i>N</i> in the character variable. The single step mode is forced if the user presses <i>Cancel</i> . The command now supports answer variables with a leading tilde.	4004 4120
FMTOBJ	<i>Pri</i> objects (report layouts) exported using <i>FMTOBJ</i> can now be loaded correctly using <i>CNVFIL</i> .	4034
GEAR	The output on the plot for chosen quality standard <i>AGMA 2000-A88</i> was optimized: When working in metric system the lowest actual quality class for pitch variation <i>VpA</i> was corrected from 8 to 6. When working in inch/imperial system and with the actual quality lower than the lowest defined quality class, the output was changed to "--".	3868

Command/Area	Description	ID
GEAR	K-charts and design profile/helix can be defined by segments based on lines and parabolas. The definition of tangent points was wrong for parabolas.	4539
LinSizeDim	The two-point size gave the wrong results in some cases. This occurred at points that are very close to the x-axis. These points have a polar angle of approx. 360°, 0° or 180°. The resulting local sizes there had approximately only half the expected diameter.	4249
MEAXI	MEAXI distinguishes between axis (3D) and lines (2D). If the argument <i>PTY</i> does not equal <i>NO</i> , i.e. the element is projected, then the axis is interpreted as a 2D object, otherwise it is interpreted as a 3D object. Using <i>NWA=Y</i> , <i>STA: :UseGSSMethod=Y</i> or <i>STA: :UseNewAXIALg=Y</i> failed to map the correct 2D/3D object to the corresponding algorithm.	4338
NurbsRadCor3D	The wrong results were given in the case of <i>C2D=Y</i> and <i>A_0=3D</i> . This problem has been solved.	4568
PointSetBestFit	A bug in PointSetBestFit caused CadRef321 to fail for a specific CAD model (no CSY resp. transformation calculated).	4236
POSITNXYZ	In a particular situation using POSITNXYZ (point as tolerated feature, sphere as tolerance zone), the correction values X_CORR, Y_CORR and Z_CORR had the wrong sign.	4192
QOverview	Nominal values and tolerances are displayed in the QOverview feature value history. In the case of negative nominal values, actual values are displayed with a negative sign in the feature value history. This is independent of the setting for the sign at the fourth position in <i>Controlstr1</i> of the EVA (Sign from actual = [N]; Sign from nominal = Y). The upper tolerance is always computed in the direction of greater magnitude. This is of particular importance for asymmetrical tolerances.	3353
QualifyTool	QualifyTool can be speeded up, when there is a previously qualified PRB with the same name by setting the status variable <i>STA:ReQualFast</i> to <i>Y</i> before requalifying the PRBs. A similar effect can be reached for a single PRB with the QualifyTool argument <i>DFT=0</i> .	3993
QualifyTool	QualifyTool crashed if an artefact had not been specified with UseArtefact.	4183

Command/Area	Description	ID
QualifyTool	<p>QualifyTool failed if the status variable <i>STA:ReQualFast</i> was set to <i>Y</i> and <i>DEL=Y</i>. This bug has been fixed.</p> <p>The scan around the equator is not remeasured if <i>STA:ReQualFast</i> is set to <i>Y</i>.</p> <p>The command now supports the verification measurements (<i>VFY=Y</i>) with a restricted measurement range. This is important for optical PRBs and short mechanical PRBs.</p>	4479, 4056
QualifyTool	<p>Changes made in relation to temperature compensation and verification have been rolled back to Version 7.12.16361. Temperature compensation is not carried out during tool qualification.</p>	4548
RcorCrv3DBlade	<p>The command used to output incorrect results if the starting point was located in the edge area.</p>	4257
RcorUsingNCurves	<p>The command sometimes gave unexpected results for the result curve.</p>	4346
ScanOnCircle	<p>The label and image in the dialogue for the angle (<i>Mode=Conical</i>) have been changed.</p>	4035
ScanOnCircle	<p>The command <i>ScanOnCircle</i> did not use the rotary table for scans, even if the keyword <i>URT</i> (Use Rotary Table) was activated. The behaviour has been improved, the rotary table now works if <i>URT=Y</i>.</p>	3006
WORM	<p>The support of standard BS721:1983 was corrected. Additionally, the plot for profile, helix, axial and transverse pitch and for runout support the output of the actual quality class.</p>	4010
XmlImport	<p><i>XmlImport</i> sometimes crashed with TXT and XML objects.</p>	4185

Table 3: Command bug-fixes

Command/Area	Description	ID
AheadLimits	If a QUINDOS version has been installed, the value for AheadLimits needs to be set. A decimal point must be used. If a comma is used instead of a point, an error: Error (2, 8003, Method, "ERROR CE ,S%1 ,TR_CE ,0x14000014 Protocol authorization violation") will come back from the controller.	3988
JogBox	QUINDOS occasionally crashed when a confirmation message was confirmed via the jog box. This applies only to old SIRIO CMMs.	4082
QUINDOS Basic	WAV messages are now read properly in QUINDOS on Windows 7 systems. In addition, QUINDOS no longer waits until the message has been read.	3470

Table 4: Global bug-fixes

9.2 Installer

Command/Area	Description	ID
Installer	QUINDOS is now started without administrator privileges if launched automatically by the installer after installation/update.	4515
Installer	The installer now creates a folder to store, e.g. customer-specific logos at the default path <i>C:\ProgramData\Quindos7\Quindos7Customer</i> . It has the same structure as <i>C:\Program Files (x86)\Quindos7MTWzCommon</i> and should be used instead.	3522

Table 5: QUINDOS Installer – New/changed functionalities

9.3 Known issues

Command/Area	Description	ID
VIM	<p>Please note the following hint when you are using the offline environment VIM.</p> <p>The command GENSCACIR with scanning type closed loop scanning (<i>TYP=SCA</i>) is not correctly supported.</p>	2492
CVCHSNAM ConvertChsToNam	<p>The following code fails because the double-index at CVCHSNAM is not parsed correctly:</p> <pre>Count=1 Count2=3 PrgExTCnt=PrgExTCnt+1 ProgramExecTime (PrgExTCnt) =msTime () ~ProgramExecLabel (PrgExTCnt) =OutputPointFile (Count, Co unt2) CVCHSNAM (QUE=\$TempName, STR=~ProgramExecLabel (PrgExTCnt) , DEL=Y)</pre> <p>To avoid this problem, use ConvertChsToNam instead of CVCHSNAM.</p>	4013
SET	<p>Using a SET command in a parallel process generates an error in the printer log service window. Adding StartReport to the parallel process prevents error logs in PPS LogService.</p>	4205

Table 6: Known issues

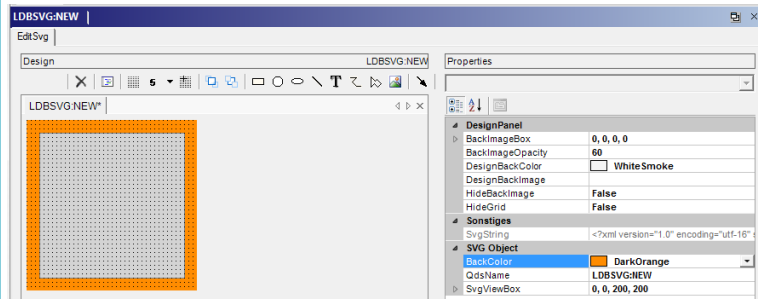
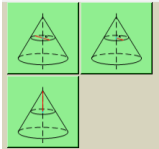
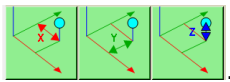
9.4 QUINDOS Basic

9.4.1 New commands

Command/Area	Description	ID												
TransferPointProperties	<p>The new command in the PDB transfers any valid APT or NPT property. The left-most closest point in <i>SRC</i> is located for each point in <i>DST</i> and the properties defined by <i>DSC</i> transferred. The number of points in <i>SRC</i> and <i>DST</i> is not important.</p> <div style="border: 1px solid #ccc; padding: 10px; margin: 10px 0;"> <p style="text-align: center; background-color: #f4a460; margin: 0;">Transfer point properties between elements</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>Destination element <input type="text"/></p> </div> <div style="width: 45%;"> <p>Source element <input type="text"/></p> </div> </div> <div style="margin-top: 10px;"> <p>Point type <input type="radio"/> Nominal points <input checked="" type="radio"/> Actual points</p> <p>Field Descriptor (Enumeration) <input type="text"/></p> <p><input type="checkbox"/> Curve open</p> </div> </div> <p style="text-align: center; background-color: #f4a460; margin: 10px 0; font-size: small;">Command in development! Use for test purposes only! Future changes can result in incompatibilities!</p> <p>TransferPointProperties (SRC, DST, DSC, OPN, STY)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;">Arguments</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>SRC</td> <td><i>Source element</i> Name of the element from which the information is copied.</td> </tr> <tr> <td>DST</td> <td><i>Destination element</i> Name of the element in which the information is inserted.</td> </tr> <tr> <td>DSC</td> <td><i>Field descriptor (enumeration)</i> List of fields to be transferred, e.g. <i>DSC</i>=(^T, ^A).</td> </tr> <tr> <td>OPN</td> <td><i>Curve open</i> Y N [] The command checks if <i>SRC</i> is open or closed</td> </tr> <tr> <td>STY</td> <td><i>Point type</i> [APT] Actual points NPT Nominal points</td> </tr> </tbody> </table>	Arguments	Description	SRC	<i>Source element</i> Name of the element from which the information is copied.	DST	<i>Destination element</i> Name of the element in which the information is inserted.	DSC	<i>Field descriptor (enumeration)</i> List of fields to be transferred, e.g. <i>DSC</i> =(^T, ^A).	OPN	<i>Curve open</i> Y N [] The command checks if <i>SRC</i> is open or closed	STY	<i>Point type</i> [APT] Actual points NPT Nominal points	4064
Arguments	Description													
SRC	<i>Source element</i> Name of the element from which the information is copied.													
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STY	<i>Point type</i> [APT] Actual points NPT Nominal points													
SCK_SystemSnapshot	<p>The command collects information about the system (DUMP, registry, EDB, GDB, LDB), log, and error files. The results are stored by default in a new folder in <i>C:\ProgramData\Quindos7\Quindos7Machines</i> in the current machine environment. The folder name is '<i>machinetype timestamp</i>'</p>	2186												

Table 7: QUINDOS Basic – New commands

9.4.2 New/changed functionalities

Command/Area	Description	ID
QUINDOS Basic	The icons displayed in the <i>General toolbar</i> at the top of the user interface and in the <i>Special toolbar</i> at the bottom of the user interface have been changed. Hover the mouse over the icon to display the <i>Tooltip</i> indicating the function.	
QUINDOS Basic	The new bool Expression <i>Ping</i> has been integrated to test a connection. Usage: <i>Boo: IsThere=Ping(192.168.0.1)</i>	4106
QUINDOS Basic	The SVG editor now supports a new property: <i>BackColor</i> .  <pre><?xml version="1.0" encoding="utf-16" standalone="yes"?> <svg viewBox="0 0 200 200" viewport-fill="DarkOrange" QdsName="LDBSVG:NEW"> <rect transform="matrix(1 0 0 1 15 15)" stroke="Gray" height="170" fill="#FFD3D3" width="170" y="0" x="0" stroke-width="1" /> </svg></pre>	3731
QUINDOS Basic	New cone evaluations regarding the center of mass have been integrated: <i>Con_Dia</i> , <i>Con_Rad</i> , <i>Con_Dis</i> ,  <i>Con_Xc</i> , <i>Con_Yc</i> and <i>Con_Zc</i> 	3836
EDTNPT / MEXXX	The CAD dialog to generate points on the loaded model now appears automatically when calling EDTNPT or MEXXX on an element without NPTs with the surface selected in the <i>CAD Viewer</i> . The function <i>Generate points on geometry</i> in the context menu in the <i>CAD Viewer</i> is thus obsolete.	4166

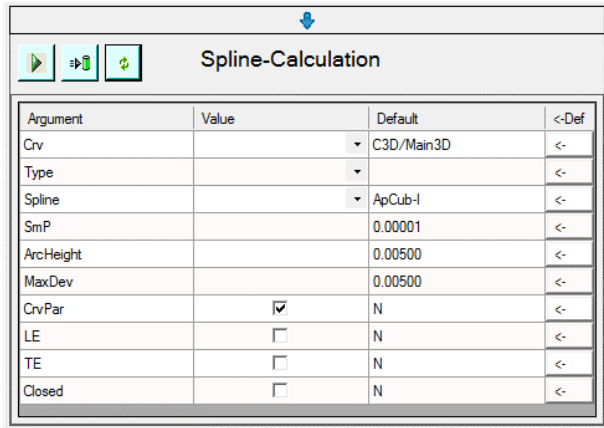
Command/Area	Description	ID
CadAcNo	Perpendicular points on a mesh are now replaced by the corresponding points on the CAD surface when using parameter <i>SRF=Y</i> . Default is <i>SRF=N</i> .	3955
QUINDOS Basic	The range for the double-index has been modified: Object:a(i1, i2), with the range i1=-1.048.575, ..., 1.048.575 and i2=0, ..., 2.047.	4039
ISO 10360	The integrated option ISO 10360 has been updated to version 19107. Please note the following changes: QualTools - the expansion coefficient of the artefact is now taken into account (important for machines without temperature model in poorly climatized environments) MP-Test - A differentiation for storage and retrieval of SENMATION adapters and tools/sensors has been implemented.	

Table 8: QUINDOS Basic – New/changed functionalities

9.5 QUINDOS Options

9.5.1 QUINDOS Blade Ultimate

9.5.1.1 *New/changed functionality*

Command/Area	Description	ID																																																						
CalcCurve	<p>The command CalcCurve has 4 additional properties. <i>LE</i>, <i>TE</i>, and <i>Closed</i> are displayed if <i>CrvPar</i>=<i>Y</i>. Changing these properties changes the element.</p>  <table border="1"> <thead> <tr> <th>Argument</th> <th>Value</th> <th>Default</th> <th><-Def</th> </tr> </thead> <tbody> <tr> <td>Crv</td> <td></td> <td>C3D/Main3D</td> <td><-</td> </tr> <tr> <td>Type</td> <td></td> <td></td> <td><-</td> </tr> <tr> <td>Spline</td> <td></td> <td>ApCub-I</td> <td><-</td> </tr> <tr> <td>SmP</td> <td></td> <td>0.00001</td> <td><-</td> </tr> <tr> <td>ArcHeight</td> <td></td> <td>0.00500</td> <td><-</td> </tr> <tr> <td>MaxDev</td> <td></td> <td>0.00500</td> <td><-</td> </tr> <tr> <td>CrvPar</td> <td><input checked="" type="checkbox"/></td> <td>N</td> <td><-</td> </tr> <tr> <td>LE</td> <td><input type="checkbox"/></td> <td>N</td> <td><-</td> </tr> <tr> <td>TE</td> <td><input type="checkbox"/></td> <td>N</td> <td><-</td> </tr> <tr> <td>Closed</td> <td><input type="checkbox"/></td> <td>N</td> <td><-</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Argument</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>CrvPar</td> <td>Y Change element properties [N]</td> </tr> <tr> <td>LE</td> <td>Y The element has a leading edge [N]</td> </tr> <tr> <td>TE</td> <td>Y The element has a trailing edge [N]</td> </tr> <tr> <td>Closed</td> <td>Y The element is closed [N]</td> </tr> </tbody> </table>	Argument	Value	Default	<-Def	Crv		C3D/Main3D	<-	Type			<-	Spline		ApCub-I	<-	SmP		0.00001	<-	ArcHeight		0.00500	<-	MaxDev		0.00500	<-	CrvPar	<input checked="" type="checkbox"/>	N	<-	LE	<input type="checkbox"/>	N	<-	TE	<input type="checkbox"/>	N	<-	Closed	<input type="checkbox"/>	N	<-	Argument	Description	CrvPar	Y Change element properties [N]	LE	Y The element has a leading edge [N]	TE	Y The element has a trailing edge [N]	Closed	Y The element is closed [N]	4229
Argument	Value	Default	<-Def																																																					
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ChebyFit	<p>The command now supports the possibility to fix the degrees of freedom. The parameter <i>Fix</i> with default value ' ' and the possibility to use any combinations of <i>X</i>, <i>Y</i>, <i>Z</i>, <i>R</i>, <i>RotX</i>, <i>RotY</i>, <i>RotZ</i> (depending on the element) has been added.</p>	4126																																																						

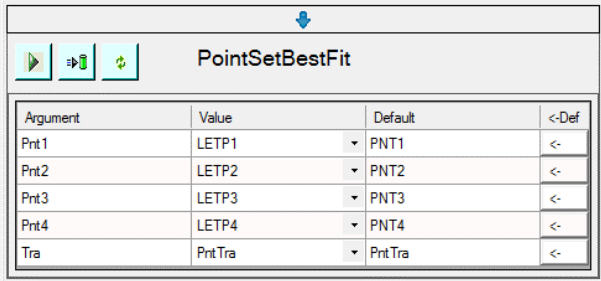
Command/Area	Description	ID						
PointSetBestFit	<p>The command performs a best-fit for 4 points (both nominal and actual) with the constraint, that the spatial distance actual-nominal of Pnt1 is equal to the spatial distance actual-nominal of Pnt2 and the same for Pnt3 and Pnt4.</p>  <p>The syntax is:</p> <pre><PointSetBestFit Pnt1="LETP1" Pnt2="LETP2" Pnt3="LETP3" Pnt4="LETP4" Tra="PntTra" /></pre> <table border="1"> <thead> <tr> <th>Argument</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Pnt1 ... Pnt4</td> <td>Points for the best-fit</td> </tr> <tr> <td>Tra</td> <td>The resulting transformation</td> </tr> </tbody> </table>	Argument	Description	Pnt1 ... Pnt4	Points for the best-fit	Tra	The resulting transformation	4208
Argument	Description							
Pnt1 ... Pnt4	Points for the best-fit							
Tra	The resulting transformation							

Table 9: QUINDOS Blade Ultimate – New/changed functionalities

9.5.2 QUINDOS Broach

9.5.2.1 *New/changed functionality*

Command/Area	Description	ID
BROACH	The dialog for axial pitch has been improved.	265

Table 10: QUINDOS Broach – New/changed functionalities

9.5.3 QUINDOS Curvic Coupling

9.5.3.1 *New/changed functionality*

Command/Area	Description	ID
CURVIC	The plot output of CURVIC_MILL has been changed to an XML structure and the dialog has been optimized.	3906

Table 11: QUINDOS Curvic Coupling – New/changed functionalities

9.5.4 QUINDOS GEAR

9.5.4.1 *New/changed functionality*

Command/Area	Description	ID
GEAR	GEAR supports the measurement of gears with horizontal axis. This feature must not be selected if the measurement is possible with one probe star. It must only be selected when the probe star is divided into two parts and movement below the gearing is not possible. This has been clarified in the dialog and a picture of the divided probe star has been added.	4135
GEAR	When measuring gears with a star, the probe shafts might collide depending on the geometry. To avoid this, offset angles can be input. For external gears, these angles were calculated automatically for pitch, profile and helix. This function was implemented to support internal gears, too.	4333
GEAR	Every measured gear element contains information about, e.g. height of profile measurement, height of pitch measurement or diameter of helix measurement. From now on, this information is shown on each plot.	4391
GEAR	Measurement of the profile can be started in the middle of the space. This includes additional evaluations of the profile. The direction of the probe radius correction was flipped for internal straight gears. The direction has been corrected for this case.	4509

Table 12: QUINDOS GEAR – New/changed functionalities

9.5.5 QUINDOS Oracle

9.5.5.1 *New/changed functionality*

Command/Area	Description	ID
RDBxx	The commands for working with relational databases have been moved from ODB (hidden) to SDB. The dialogs have been optimised.	3867

Table 13: QUINDOS Oracle – New/changed functionalities

9.5.6 QUINDOS Reshaper

9.5.6.1 *New/changed functionality*

Command/Area	Description	ID
RshOperMesh	The command now supports performing a transformation on a mesh. The mesh can now be saved in a specific coordinate system or transformation.	4150

Table 14: QUINDOS Reshaper – New/changed functionalities

9.5.7 QUINDOS Roughness

9.5.7.1 *New/changed functionality*

Command/Area	Description	ID
RghEvaluate	The command now supports a λ_f filter for residual form removal.	4223
RghScanLine	The behaviour of RghScanLine has been changed: The start point is no longer shifted by the pre-travel distance. The measurement (including pre-travel) now starts at the given start point.	3897

Table 15: QUINDOS Roughness – New/changed functionalities

9.5.8 QUINDOS Statistics

9.5.8.1 *New/changed functionality*

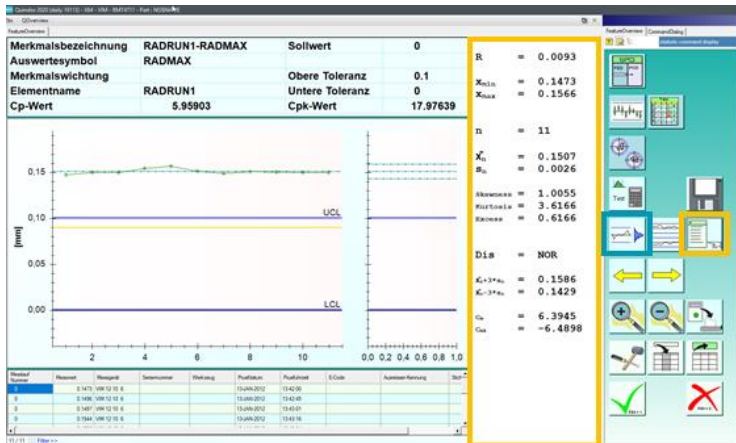
Command/Area	Description	ID
QOverview	<p>The "Show Info" button displays the characteristic values for the history visualisation and for the quality control charts.</p> 	3962

Table 16: QUINDOS Statistics – New/changed functionalities

9.5.9 QUINDOS Virtual CMM - VCMM II: New option available

PTB verified Virtual CMM to simulate the feature-specific measurement uncertainty in a machine environment

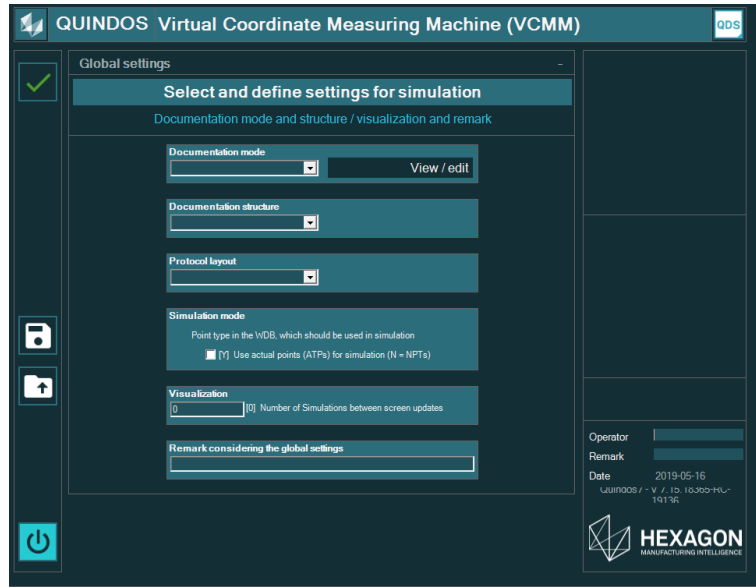


Figure 4: QUINDOS Virtual CMM - VCMM II

The Option VCMM II is used to determine and document the task-specific measuring uncertainty of tactile measurements on stationary coordinate measuring systems without rotary tables. The individual measuring uncertainty of the test features is determined according to the latest mathematical models from the PTB. The PTB's numerical simulation is the current standard. It takes new influences and their correlations into consideration to reflect the demands of complex measurement tasks using the technological standards of today's measuring devices. The influence of scanning, tools, tool changes, ambient conditions, and the workpiece itself are all part of this determined measuring uncertainty. The VCMM II option offers an efficient, reliable methodology to monitor and verify conformity of the measurements with current standards.

Simulation of feature-specific measuring uncertainty is carried out for each individual test feature after measurement. The simulation is based on the factors influencing measuring uncertainty determined on a real coordinate measuring machine (CMM). These are stored in a parameter set as a digital twin of the CMM.

The Service team provides assistance during initial determination of the parameter set and carries out the residual error determination at the machine. The ambient conditions (temperature) and influencing factors are determined and documented. The residual error determination requires a valid acceptance test according to EN ISO 10360-2:2002-05. The measuring machine must be verified to be in specification.

Application-relevant influencing factors can be regularly recorded independently by the operator. Our personnel can provide the necessary training. You will receive information on best practices when creating the part programs and instructions on how to use the individual commands in the option.

The duration (number of simulation runs) and timing of the simulation depend on the type of application. They can be adjusted according to the individual measuring tasks in order to react flexibly to accuracy and efficiency demands. This QUINDOS solution provides a structured user interface to guide the user through the relevant steps from task definition to the final report. The measuring uncertainty can be output as a value individually for each feature on the report and also graphically. The graphical output can be differentiated for incoming and outgoing inspection, or according to the conventional QUINDOS graphic without separate illustration of the uncertainty.

9.5.9.1 *Vcm2Call* – Call VCMM dialog for probe offset, change and drift

Vcm2Call launches the dialogue to determine the uncertainty contributions of the drift, tool offset, and tool change. The latter is compulsory.

The correct tool configuration must be used. The tools must already be qualified. The reference tool should not be used for the VCMM II simulation. The tool configuration must consist of 5 tools in order to determine all 3 uncertainty contributions. This star configuration must include a tool pointing in the direction of the positive X axis, the negative X axis, the positive Y axis, the negative Y axis, and the negative Z axis of the coordinate measuring machine. The two spheres must already have been defined using *DfnArtefact*. Ambient conditions, set-up, cleanliness, temperature, qualification, and temperature compensation should be as close to normal operation as possible.

The scheduled assessment of the factors influencing the probe head and drift on the CMM delivers the following results for the individual constituents:

- Multiple Probe (MP) tool offset (*REA:VCMM2offset_uSigma*)
- Tool change (*TXT:<Sensor>*)
- Drift (*REA:VCMM2drift_uSigma*).

These uncertainty contributions must be entered in the *exchange* file (values for offset and drift) or taken up in the part program using *Vcm2EdbSnapshot*. This ensures that they are considered when determining the measurement uncertainty of a part program for each characteristic.

ATTENTION Risk of collision: The measurement sequence begins with an initial manual probing on the check sphere with the tool pointing in positive X direction. Required clearance positions (CLPs) can be taught at this stage to move from the tool change rack to the check sphere (and back) without collision. Unrestricted travel between the reference sphere and the check sphere and measurement of both spheres must be possible with all tools.

Refer to the QUINDOS VCMM II Manual for more information on data input.

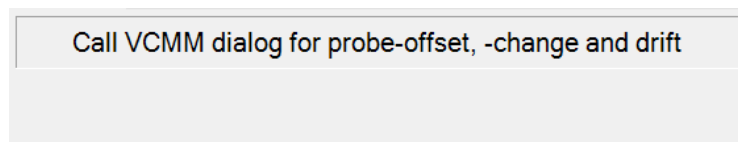


Figure 5: *Vcm2Call* – Call VCMM dialog for probe offset, change and drift

Vcm2Call (PRC)

9.5.9.2 *Vcm2CreateEleParXml* – Create VCMM element parameter XML object

Vcm2CreateEleParXml creates an optional XML object which is used to store the specific parameters for each element in the VCMM simulation.

The object is called *LDBXML:VCMM2_ELeRefrSimuParams*.

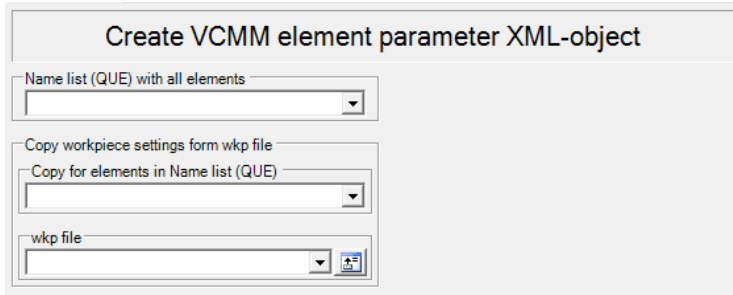


Figure 6: *Vcm2CreateEleParXml* – Create VCMM element parameter XML object

Vcm2CreateEleParXml (**ELE**, **WKP**, **INI**, REF, SCA, SPC, NBR, ISV, MPF, TOL)

Arguments	Description
ELE	<i>Name list (QUE) with all elements</i> All elements to which the parameters in the XML object apply. <i>[LDBELE:*()]</i>
WKP	<i>File path for the wkp file</i> Name and path to the workpiece file in the <i>exchange</i> directory from which the workpiece properties are copied to the XML object.
INI	<i>Copy for elements in name list (QUE)</i> All elements to which the workpiece-specific <i>WKP</i> IDs from the XML object should apply and not the defaults from the <i>WKP</i> file.

Table 17: Data entered in the dialogue *Vcm2CreateEleParXml*

9.5.9.3 *Vcm2EdbSnapshot – Load VCMM probe and probe change data from the EDB*

Vcm2EdbSnapshot loads the VCMM-specific tool and tool change data (TXTs) from the EDB into the LDB and creates QUEs to provide this data and information to the subsequent simulation of the saved part program (WDB). The tool data must be in the WDB.

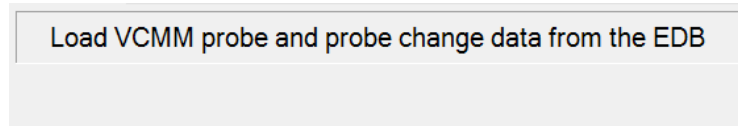


Figure 7: *Vcm2EdbSnapshot – Load VCMM probe and probe change data from the EDB*

Vcm2EdbSnapshot (PRC)

9.5.9.4 *Vcm2QualCheck – VCMM: Detect uncertainty of probe qualification*

Vcm2QualCheck determines the qualification uncertainty contribution for a tool.

This measurement must be carried out directly after tool qualification. The VCMM check of the tool gives the result `EDBTXT:<Name of the tool>`.

In general, tools can differ greatly in relation to length and alignment. However, angle restrictions are not allowed meaning that an entire hemisphere must be measurable. The shaft of the check sphere can, at most, be located on the equator and thus on the edge of the hemisphere to be measured.

ATTENTION Risk of collision: The user is responsible for collision-free travel between the reference and check spheres.

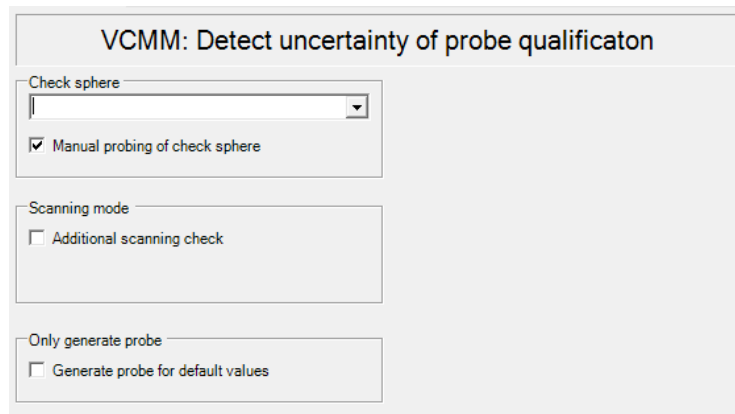


Figure 8: *Vcm2QualCheck – VCMM: Detect uncertainty of probe qualification*

Vcm2QualCheck (REF, RPT, PTS, RAD, SCA, CPS, MAN, GEN, PRC)

Arguments	Description
REF	<p><i>Check sphere</i></p> <p>Must be previously defined using DfnArtefact.</p> <p>[] LastArtefactUsed</p>
SCA	<p><i>Scanning mode</i></p> <p>Perform an additional scanning check and include when determining uncertainty.</p> <p>[N]</p>
CPS	<p><i>Element for scan paths if SCA=Y</i></p> <p>Depending on the accessibility of the sphere, specify whether it should be measured without interference from the shaft of the artefact (<i>Ignore shaft CPS=Vcm2cQcCpyPrbScan1</i>) or if this is close to the equator and thus interferes with the measurement area on a hemisphere (<i>Consider shaft CPS=Vcm2cQcCpyPrbScan2</i>).</p> <p>ATTENTION: Risk of collision!</p>
MAN	<p><i>Manual probing of check sphere</i></p> <p>Manual probing can be skipped if the position of the check sphere is known (<i>CSY:<Name of the artefact></i>).</p> <p>[Y]</p>
GEN	<p><i>Only generate probe</i></p> <p>Generate VCMM data for the tool without checking the tool so that default values are applied.</p> <p>[N]</p>

Table 18: Data entered in the dialogue Vcm2QualCheck

9.5.9.5 Vcm2Roughness – Preparation of VCMM roughness measurement

Vcm2Roughness prepares and executes the roughness measurement.

This is an optional measurement. VCMM roughness is exclusively specific to the tool and part used. It is only valid for the measurement parameters used on the coordinate measuring machine. These should therefore be selected in exactly the same manner as for the measurement. The measurement on the part is highly dependent on the part and measuring strategy employed and is thus to be individually determined in advance. Refer to the PTB manual for information on the other procedures such as RZ measurement and estimation.

Single point roughness should be measured at at least 3 different measuring sites on the part. Scanning roughness must be carried out both forward and backward. The measuring length must be at least 10mm and at least 1000 measuring points must be recorded along its length. 20mm and 2000 measuring points are recommended. Refer to the VCMM II Manual for details.

The result is the *TXT:<RoughnessID>* which contains the necessary measuring point information, and the *QUE:\$VCMM2_Roughness* plus *<RoughnessID>*.

During the simulation, the PTB automatically calculates the roughness parameters when the VCMM simulation is initialised and the TXTs and QUE exist. The influence of the calculated roughness values is considered during the simulation.

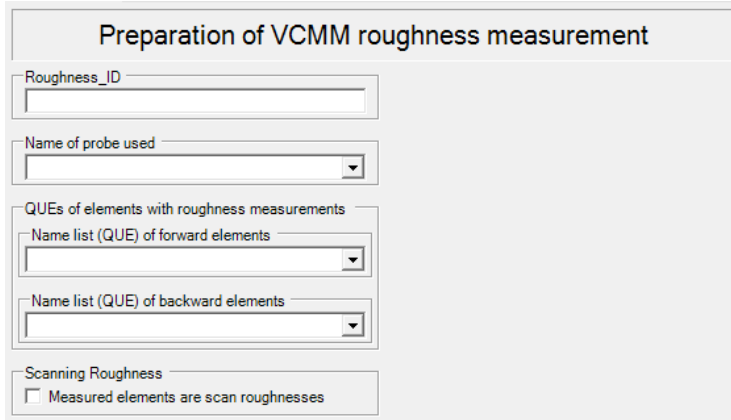


Figure 9: Vcm2Roughness – Preparation of VCMM roughness measurement

Vcm2Roughness (SCA, PRB, ELF, ELB, RID, SAV, PRC)

Arguments	Description
RID	<i>Roughness_ID</i> Name of the TXT and ID in which the result is stored.
PRB	<i>Name of probe used</i> The tool used for the roughness measurement must be qualified and present in the EDB.
ELF	<i>Name list (QUE) of forward elements</i> The forward elements of the roughness measurement must be recorded and listed for both single point roughness and scanning roughness. [\$RZ_F]
ELB	<i>Name list (QUE) of backward elements</i> The backward elements must be recorded separately and listed if scanning roughness SCA=Y. The backward list for single point roughness can be the same as the forward list for single point roughness. [\$RZ_B]
SCA	<i>Scanning roughness</i> Measured elements are scanning roughness. [N]

Table 19: Data entered in the dialogue Vcm2Roughness

9.5.9.6 Vcm2SetEleParXml – Set VCMM element parameter XML object

Vcm2SetEleParXml edits the optional XML object which is used to store the specific parameters for each element in the VCMM simulation.

The edited object is called *LDBXML:VCMM2_ELeRefrSimuParams*.

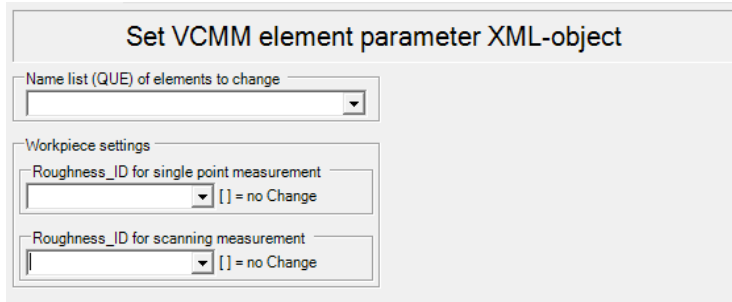


Figure 10: Vcm2SetEleParXml – Set VCMM element parameter XML object

Vcm2SetEleParXml (**ELE**, **RZP**, **RZS**, TMP, MBT, FRM, INI, REF, SCA, SPC, NBR, ISV, MPF)

Arguments	Description
ELE	<p><i>Name list (QUE) of elements to change</i></p> <p>All elements to which the parameters in the XML object apply.</p> <p>[LDBELE:*()]</p>
RZP	<p><i>Roughness ID for single point measurement</i></p> <p>Single point roughness ID to set in the XML object for the selected elements (<i>ELE</i>). This roughness ID must be known in the part program (in the WDB as <i>TXT:<Roughness-ID></i>) or in the folder <i>wkp</i> in the <i>RoughnessDescription.xml</i>.</p> <p>[] No change</p>
RZS	<p><i>Roughness ID for scanning measurement</i></p> <p>Scanning roughness ID to set in the XML object for the selected elements (<i>ELE</i>). This roughness ID must be known in the part program (in the WDB as <i>TXT:<Roughness-ID></i>) or in the folder <i>wkp</i> in the <i>RoughnessDescription.xml</i>.</p> <p>[] No change</p>

Table 20: Data entered in the dialogue Vcm2SetEleParXml

9.5.9.7 *Vcm2SimCall – Call VCMM simulation dialogue*

Vcm2SimCall calls the dialogue-based VCMM simulation menu.

Global parameters are configured here (e.g. simulation mode and documentation). A documentation path must be specified. The part program, together with a QUE with the names of the elements to simulate (with already defined evaluations) must be specified. The path of the *exchange* directory (parameter set of the virtual CMM) and the main XML of the part must also be specified. The VCMM simulation can then be launched from the dialogue to determine the measurement uncertainties.

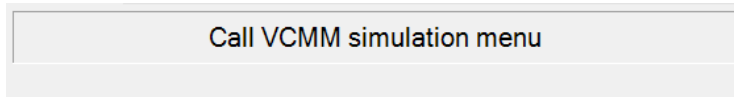


Figure 11: *Vcm2SimCall – Call VCMM simulation dialogue*

Vcm2SimCall (PRC)

9.5.10 QUINDOS CAD BASIC

9.5.10.1 *Hint*

The changes in QUINDOS CAD BASIC are listed in the chapter [QUINDOS Basic](#).

Please also note the information in chapter [QUINDOS CAD – important information](#).

9.5.11 QUINDOS ISO 10360

9.5.11.1 *Important Information*

The QUINDOS ISO databases are installed in the directory
C:\Program Files (x86)\Quindos7\ISO\DataBases during the installation.

If you are using the QUINDOS ISO databases, please ensure that the user privileges for read, write, and change exist for the folder *C:\Program Files (x86)\Quindos7\ISO* and its contents.

If this access is not given, the execution will fail with the following error message:
'Access denied - *C:\Program Files (x86)\Quindos7\ISO\DataBases\Iso.HDB*'.

The recommended ISO version is the ISO version 19107 (2010).

The previous versions of the QUINDOS ISO option is also available as a self-extracting archive in the category *QUINDOS utilities* at <http://download.quindos.de> (ISO version 2002) on our download server.

A QUINDOS ISO license is required.

10 QUINDOS Version 2019.2-1

10.1 Bug-fixes

The following bugs have been fixed in release version 2019.2-1.

Command/ Area	Description	ID
ADDEVA	If a feature EVA is set to get the nominal value from CAD (i.e. the sixth position in <i>Control String 1</i> of the EVA is Y), the value was incorrect in the case of ADDEVA (or NOM,NOC). This bug is fixed now.	4678
AQDEF	The SDBXML : QDAS\$A11ESY containing the assignment of the QUINDOS evaluation symbols to the Q-DAS keys has been revised. For ESY:AXIRUN, k2009 is set to "118". For ESY:T, k2009 is set to "800" and k2142 is set to "s".	4602
GEAR	Cylindrical gear: When choosing only a large plot for evaluation of profiles, the procedure may stop with a missing variable. This behaviour is fixed. As a workaround, customers can enable the large plot in addition to the standard plot.	4562
GEAR	Cylindrical gear: The standard pitch plot inverted the tolerances and nominal quality classes for left/right at least for fu, Fp and fp. This change has no effect, if left/right tolerances/quality classes are the same.	4590
GEAR	Activation of the MOVTIPZ feature lead to unexpected movements during movement in Z direction when changing the probe.	4637
PMI	Conversion of some CAD files crashed. A new setting <i>ReadPMIs</i> to disable reading of PMIs has been integrated. This switch disables reading PMIs by default. If necessary, you must create the key if it is not present – the usual warnings apply when editing the registry. Turn on / off reading of PMIs HKEY_CURRENT_USER\Software\MTWz\Quindos7\Quindos\Environments\[ENVIRONMENT]\Settings\ ReadPMIs The options are Yes and No.	4702

Command/ Area	Description	ID
QOverview	<p>Statistics shot pattern: Behaviour of interaction has been improved. Magnification is proposed when the number of selected items changes. It can also be set manually. The magnification has no effect for a single target. If only one coordinate is saved, it is shown interactively but there is no plot.</p> <p>For the pattern case, all positions containing the two correction coordinates of the plane can be shown together. In case of XY plane you need x_corr and y_corr. If one of them is missing, the position is marked by Color in the table.</p>	4441
QualifyTool	The calculation of the tool offsets after the probe has been calibrated is now performed with workpiece temperature compensation switched off.	4699
QUINDOS Basic	<p>The evaluation display with DX, DY, DZ, DXYZ crashed under certain circumstances. If you are unable to update the graphics card driver, you can set one of the following registry keys as a work-around to either turn off the visualization of evaluations entirely or specifically for the given dimensions.</p> <p>If necessary, you must create the key if it is not present – the usual warnings apply when editing the registry.</p> <p>Turn on / off visualization of EVAs: HKEY_CURRENT_USER\Software\MTWz\Quindos7\Quindos\Environments\[ENVIRONMENT]\Settings\VisualizeEvaluation The options are <i>Yes</i> and <i>No</i>.</p> <p>Turn on / off usage of dimensions in evaluation for DX, DY, DZ, DXYZ: HKEY_CURRENT_USER\Software\MTWz\Quindos7\Quindos\Environments\[ENVIRONMENT]\Settings\UseDimensionInEvaluation The options are <i>Yes</i> and <i>No</i>.</p>	4683
QUINDOS Basic	The procedure ROUNDNESS now plots the radius-corrected diameter.	4691
TCRCALPRB	A toolchanger problem with the TesaStar5 and TravelRack has been corrected.	4544

Table 21: 2019.2-1 Command bug-fixes

10.2 New/changed functionalities



The following functionalities have been changed in release version 2019.2-1.

Command/ Area	Description	ID
EDTNOM/ EDTACT	The extended dialogue with information on the calculated centre of gravity of the cone is now displayed by default.	4646
GEAR	Cylindrical gear: For profile/helix evaluation the "load" flank side can be marked in the header with "/load". This feature was enhanced and now allows you to add customised text instead. The additional information can be input via the corresponding dialog page.	4552
QUINDOS Basic	The new evaluation symbols for cones (Con_Dia, Con_Rad, Con_Dis, Con_Xc, Con_Yc and Con_Zc) in the PDB are now enabled.	4643

Table 22: QUINDOS Version 2019.2-1 – New/changed functionalities

11 ANNEX

11.1 PTB certification of QUINDOS Version 7

Physikalisch-Technische Bundesanstalt Braunschweig und Berlin		
 Prüfbericht <i>Test Report</i>		
Gegenstand: <i>Object:</i>	Auswertesoftware für Koordinatenmessgeräte <i>Evaluation software for coordinate measuring machines</i>	
Hersteller: <i>Manufacturer:</i>	Messtechnik Wetzlar GmbH Walter Zapp Strasse 4 35578 Wetzlar GERMANY	
Typ: <i>Type:</i>	QUINDOS Version 7	
Gerätenummer: <i>Serial number:</i>		
Auftraggeber: <i>Applicant:</i>	Messtechnik Wetzlar GmbH Walter Zapp Strasse 4 35578 Wetzlar GERMANY	
Anzahl der Seiten: <i>Number of pages:</i>	4	
Geschäftszeichen: <i>Reference No.:</i>	PTB-5.3-2006-084	
Prüfzeichen: <i>Test mark:</i>	PTB-5.3-2006-084	
Datum der Prüfung: <i>Date of test:</i>	2006-11-17	
Im Auftrag: <i>By order:</i>	Braunschweig, 2006-11-20	Bearbeiter: <i>Examiner:</i>
 Dr.-Ing. H. Schwenke	Siegel <i>Seal</i> 	 Dipl.-Ing. N. Gerwien
<small>393 0319 g</small>		
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Physikalisch-Technische Bundesanstalt



Seite 2 zum Prüfbericht vom 2006-11-20, Prüfzeichen: PTB-5.3-2006-084
Page 2 of test report of 2006-11-20, test mark: PTB-5.3-2006-084

Aufgabe

Es sollte die Richtigkeit der Auswertesoftware durch einen Test untersucht werden. Dieser Softwaretest wurde durch Vergleich von berechneten Ergebnissen mit Referenz-Ergebnissen der PTB durchgeführt.

Randbedingungen

Der Softwaretest beschränkte sich auf die Basis-Formelemente Gerade, Ebene, Kreis, Zylinder, Kegel und Kugel. Die o. a. Ergebnisse sind die Parameter dieser Formelemente, die im Falle der Referenz-Ergebnisse nach der Gauß'schen "Methode der kleinsten Abweichungsquadratsumme" bestimmt wurden.

Die Formelemente werden durch Datensätze repräsentiert, die aus Punkten im Raum bestehen. Diese Punkte (zwischen 10 und 50 je Datensatz) sind von der PTB durch rechnerische Simulation von Koordinatenmessungen generiert worden. Dabei wurden die Punkte unregelmäßig auf Segmenten der Formelemente verteilt. Den exakten Geometrien wurden zufällige und systematische Abweichungen zwischen 20 µm und 50 µm überlagert. Außerdem waren die Formelemente in unterschiedlichen Lagen und Orientierungen angeordnet.

Durchführung

Dem Antragsteller wurden die simulierten Daten der o. a. Formelemente auf Diskette und in einer Liste zur Verfügung gestellt. Der gesamte Test umfasste 44 Datensätze, je Formelement 4 bis 10.

Diese Datensätze wurden gemäß Erklärung des Antragstellers von der oben näher bezeichneten Auswertesoftware so ausgewertet, als seien sie von einem Koordinatenmessgerät erzeugt worden. Die von dem Antragsteller ermittelten Parameter wurden der PTB mitgeteilt und mit deren Referenzwerten verglichen. Zur Beurteilung der Software sind die aus dem Vergleich sich ergebenden Abweichungen der Größe nach in vier Klassen eingeteilt worden.

Ergebnisse

Sämtliche Ergebnisse der getesteten Software wichen von den Referenzwerten der PTB um weniger als 0,1 µm in Längeneinheiten bzw. 0,1" in Winkeleinheiten ab und liegen damit in der Klasse der kleinsten Abweichungen.

Literatur: Porta, C., Wäldele, F.: Testing of three coordinate measuring machine evaluation algorithms, BCR information EUR 10 909 EN, Brussels - Luxembourg, 1986
Drieschner et.al.: Testing Coordinate Measuring Machine Algorithms Phase II, BCR information EUR 13 417 EN, Brussels - Luxembourg, 1991

Physikalisch-Technische Bundesanstalt



Seite 3 zum Prüfbericht vom 2006-11-20, Prüfzeichen: PTB-5.3-2006-084
Page 3 of test report of 2006-11-20, test mark: PTB-5.3-2006-084

Summary

The accuracy of the evaluation software was verified by comparing the results obtained from the software with reference results supplied by the PTB for the same set of data.

Scope

The test was restricted to the basic form elements straight line, plane, circle, cylinder, cone and sphere. The reference results which are the parameters of the elements were calculated using the Gauss "method of least squares".

The elements are represented by data sets, defining points in space. These points were generated by the PTB (between 10 and 50 per set) by computer simulation of coordinate measurements. The points are distributed randomly on segments of the elements. Systematic and random deviations between 20 μm and 50 μm have been superimposed on the theoretical geometries. The elements have also been tested in different positions and locations.

Procedure

The simulated data sets of the elements were made available to the applicant on disk and on paper. The entire test consisted of 44 sets of data, each element requiring between 4 and 10 data sets.

According to information provided by the applicant, the data sets have been evaluated in the same way as data from a CMM would be, using the software specified above. The parameters calculated by the applicant have been passed on to the PTB where they have been compared with the reference values. For the assessment of the software, the deviations found in the comparison have been sorted into four classes.

Results

All results obtained with the software under test deviated from the PTB results by less than 0,1 μm in length features and 0,1° in angular features. The software has therefore been placed in the class of the smallest deviations.

Literature: Porta, C., Wäldele, F.: *Testing of three coordinate measuring machine evaluation algorithms*, BCR information EUR 10 909 EN, Brussels - Luxembourg, 1986

Drieschner et al.: *Testing Coordinate Measuring Machine Algorithms Phase II*, BCR information EUR 13 417 EN, Brussels - Luxembourg, 1991

11.2 PTB certification of QUINDOS Version 7

 Physikalisch-Technische Bundesanstalt Braunschweig und Berlin Nationales Metrologieinstitut	
 Prüfbericht <i>Test Report</i>	
Gegenstand: <i>Object:</i>	Auswertesoftware nach Gauß für Koordinatenmessgeräte <i>Evaluation software based on least-squares method for coordinate measuring machines</i>
Hersteller: <i>Manufacturer:</i>	Hexagon Metrology GmbH
Typ: <i>Type:</i>	Quindos7 - V 7.11.15351
Auftraggeber: <i>Applicant:</i>	Hexagon Metrology PTS GmbH
Ergebnis: <i>Result:</i>	bestanden <i>Die maximalen Abweichungen sind kleiner als 0.10 µm und 0.10 µrad</i> <i>passed</i> <i>The maximum deviation is less than 0.10 µm and 0.10 µrad</i>
Anzahl der Seiten: <i>Number of pages:</i>	4
Prozess ID: <i>Process ID:</i>	U8G5MXJ9YNO41XY9
Geschäftszeichen: <i>Reference No.:</i>	PTB-5.32-4079867
Datum der Prüfung: <i>Date of test:</i>	2016-04-25
Im Auftrag <i>On behalf of PTB</i>	Braunschweig, 2016-04-25
 Dr.-Ing. Frank Härtig Direktor und Professor	 Siegel <i>Seal</i>
	Im Auftrag <i>On behalf of PTB</i>  Dr.-Ing. Klaus Wendt
<p>Prüfbericht ohne Unterschrift und Siegel haben keine Gültigkeit. Dieser Prüfbericht darf nur unverändert weiterverbreitet werden. Auszüge bedürfen der Genehmigung der Physikalisch-Technischen Bundesanstalt.</p> <p><i>Test Reports without signature and seal are not valid. This Test Report may not be reproduced other than in full. Extracts may be taken only with the permission of the Physikalisch-Technische Bundesanstalt.</i></p>	



Prüfbericht

Test Report

Gegenstand: Auswertesoftware nach Tschebyscheff für Koordinatenmessgeräte
Object: Evaluation software based on minimum-zone method for coordinate measuring machines

Hersteller: Hexagon Metrology GmbH
Manufacturer:

Typ: Quindos7 - V 7.11.15351
Type:

Auftraggeber: Hexagon Metrology PTS GmbH
Applicant:

Ergebnis: bestanden
Result: Die maximalen Abweichungen sind kleiner als 0.10 µm und 0.10 µrad
 passed
 The maximum deviation is less than 0.10 µm and 0.10 µrad


Anzahl der Seiten: 4
Number of pages:

Prozess ID: Y09LWUEYEGOB15SG
Process ID:

Geschäftszeichen: PTB-5.3-4073755
Reference No.:

Datum der Prüfung: 2016-03-02
Date of test:

Im Auftrag
 On behalf of PTB


 Dr.-Ing. Frank Härtig
 Direktor und Professor

Braunschweig, 2016-03-02

Siegel
 Seal



Im Auftrag
 On behalf of PTB


 Dr.-Ing. Klaus Wendt

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11.3 PTB certification for cylindrical gears

<p>Physikalisch-Technische Bundesanstalt</p> <p>Braunschweig und Berlin</p>		
 <p>Bericht <i>Report</i></p>		
Gegenstand: <i>Object</i>	<p>Testdaten für evolventische Zylinderradauswertungen Testdata for cylindrical involute gear algorithms</p>	
Hersteller: <i>Manufacturer</i>	<p>Leitz Messtechnik GmbH Siegmond-Hiepe-Str. 2-12 35578 Wetzlar</p>	
Typ: <i>Type</i>	<p>QUINDOS 4304</p>	
Gerätenummer: <i>Serial number</i>	<p>---</p>	
Antragsteller: <i>Applicant</i>	<p>Leitz Messtechnik GmbH Siegmond-Hiepe-Str. 2-12 35578 Wetzlar</p>	
Anzahl der Seiten des Berichtes: <i>Number of pages of the report</i>	<p>4</p>	
Geschäftszeichen: <i>Reference No.</i>	<p>PTB-5.33-04.046</p>	
Prüfzeichen: <i>Test mark</i>	<p>---</p>	
Datum der Prüfung: <i>Date of test</i>	<p>2004-09-02</p>	
Im Auftrag <i>By order</i>	<p>Braunschweig, 2004-09-24</p>	<p>Bearbeiter: <i>Examiner:</i></p>
<p><i>F. Wäldele</i></p> <p>Dr.-Ing. Franz Wäldele Direktor und Professor</p>	<p>Siegel <i>Seal</i></p> 	<p><i>Frank Härtig</i></p> <p>Dr.-Ing. Frank Härtig</p>
<p><small>Berichte ohne Unterschrift und ohne Siegel haben keine Gültigkeit. Dieser Bericht darf nur unverändert weiterverbreitet werden. Auszüge oder Änderungen bedürfen der Genehmigung der Physikalisch-Technischen Bundesanstalt. Reports without signature and seal are not valid. This report may not be reproduced other than in full except with the permission of the Physikalisch-Technische Bundesanstalt.</small></p>		

11.4 Release Document



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Wetzlar, 17 May 2019

RELEASE

FOR THE MEASURING & ANALYSIS SOFTWARE

QUINDOS®

RELEASE VERSION: 2019.2

The QUINDOS Software (Version 7) was tested by the German national laboratory (Physikalisch Technische Bundesanstalt) in Braunschweig. The results were classified in the class of the smallest deviation.


The above mentioned QUINDOS Release Version was checked as described in the Hexagon Metrology GmbH QMS manual. During these procedures the functionality was tested and the results were compared with the results from the version certified by the PTB (QUINDOS Version 7).

Hexagon Metrology GmbH releases the above mentioned software version for general use with coordinate measuring systems.

Hexagon Metrology GmbH



i. V. Dominik Schneider
Manager Quality &
Environment



i. V. Dr. Thomas Maresch,
Head of firmware & software
development



i. V. Karin Schneider
Product Manager QUINDOS



Managing Directors: Stefan Ruh - Arno Seuren - Jochen Mohn - Michael Rosenbruch
Local Court Wetzlar, Trade Register No. HRB 1201
VAT-IdNo.: DE 112 620 867
Tax-No.: 020 235 61568









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